

1    What is Claimed is:

1        1. A system for processing a data file that includes  
2 a plurality of versioned records which are of a fixed  
3 length, said system comprising:

4              an input vertical stack processor including a record  
5 transitioning routine for determining when said one record  
6 is a previous record version and for transitioning the  
7 previous record version of said one record into a current  
8 record version of said one record for use in creating an  
9 application input file; and

10             an application processor for processing said  
11 application input file.

1        2. The system of claim 1, wherein said record  
2 transitioning routine reformats previous version data fields  
3 of said one record to current data fields of said one  
4 record.

1        3. The system of claim 1, wherein said input vertical  
2 stack processor validates said one record prior to  
3 transitioning said one record.

1        4. The system of claim 3, wherein said input vertical  
2 stack processor includes a structure editing routine for  
3 providing file structure editing of said versioned records  
4 of said data file.

1        5. The system of claim 1, wherein each input record  
2 of said plurality of records includes a version number which  
3 indicates if a record is a current version or a previous  
4 version.

1        6. The system of claim 5, wherein said record  
2 transitioning routine uses the version number to determine  
3 if a record is a previous version.

1       7. The system of claim 6, and including an output  
2 vertical stack processor responsive to said application  
3 processor for producing a destination file including a  
4 plurality of records wherein each record includes at least  
5 current record versions for each record of said data file,  
6 and for writing the current record version of each record to  
7 the destination file.

1       8. The system of claim 7, wherein said output  
2 vertical stack processor supplements data contained in at  
3 least one record of said plurality of records with data for  
4 at least one previous version of said one record prior to  
5 writing said one record to said destination file.

1       9. The system of claim 8, wherein said output  
2 vertical stack processor supplements data contained in said  
3 one record with data for all of the previous versions of  
4 said one record prior to writing said one record to said  
5 destination file.

1       10. A system for producing a destination data file  
2 that includes a plurality of versioned records which are of  
3 a fixed length, said system comprising:

4           an application processor for producing the current  
5 version of each record of said data file; and

6           an output vertical stack processor using the current  
7 version of at least one record of said data file and  
8 information contained in a static memory map to produce a  
9 record which includes current version data supplemented with  
10 data for at least one previous version of said one record,  
11 and for writing the record including current version data  
12 and previous version data to the destination data file.

1       11. The system of claim 10, wherein said output  
2 vertical stack processor supplements the current version  
3 data with data for all previous versions of said one record,  
4 in combination with the current version, of said one record  
5 of said data file prior to writing the record including

6 current version data and all previous version data of said  
7 one record to the destination file.

1       12. A method for processing a data file that includes  
2 a plurality of input records which are of a fixed length,  
3 said method comprising the steps of:

4       reading at least one of said input records to obtain  
5 from said one input record, a version number for said one  
6 input record, the version number indicating whether said one  
7 input record is a current version or a previous version of  
8 said one input record;

9       using said version number to determine if said one  
10 input record is a current version or a previous version, and  
11 when said one input record is a previous version,  
12 transitioning said one input record to a current version of  
13 the input record by

14       moving said one input record to a first work area  
15 of a memory, the first work area defining data fields  
16 for said one input record;

17       initializing a second work area of the memory with  
18 default values for the current version of said one  
19 input record, with the default values contained in data  
20 fields of the current version of said one input record;  
21 and

22       moving data contained in the data fields of said  
23 one input record in said first memory work area to  
24 corresponding data fields of the current version of  
25 said one input record in said second memory work area,  
26 whereby said second memory work area contains said one  
27 input record transitioned to the current version of  
28 said record.

1       13. The method of claim 12, wherein each of said input  
2 records includes a data receiving portion and a reserve  
3 area, and including the step of determining for at least  
4 said one input record if at least a portion of the reserve  
5 area defined for said previous version of said one input

6 record is being used, and halting processing of said data  
7 file when any portion of said defined reserve area is being  
8 used.

1       14. The method of claim 12, including the step of  
2 reformatting data fields of said one input record to current  
3 data fields after data contained in the data fields of said  
4 one input record in said first memory work area have been  
5 moved to corresponding data fields of the current version of  
6 said one input record in said second memory work area.

1       15. The method of claim 14, wherein reformatting data  
2 fields of said one input record includes moving data from a  
3 first data field in said second memory work area to a second  
4 data field in said second memory work area.

1       16. The method of claim 12, wherein initializing the  
2 second memory work area with default values includes the  
3 steps of reading a record definition for the current version  
4 of said one input record to obtain the default values for  
5 the current version of said one input record, and copying  
6 the default values for the current version of said one input  
7 record to said second memory work area.

1       17. The method of claim 12, including the step of  
2 writing the transitioned version of said one input record to  
3 an application data file.

1       18. The method of claim 17, and when said one input  
2 record is the current version, moving said one input record  
3 to a work area of the memory, and writing said one input  
4 record, without transitioning, to an application file.

1       19. A method for making a change in the record format  
2 of a record of a data file that includes at least a first  
3 data field, said method comprising:

4 defining for said record a reserve area of a given  
5 length for accommodating a change in the record format of a  
6 first version of said record;

7 assigning a version number to said record when said  
8 record is initially created;

9 creating a second data field using a portion of said  
10 reserve area to accommodate the change in the record format  
11 of said record while all other fields of said record remain  
12 unchanged and the length of said record remains unchanged;  
13 and

14 changing the version number for said record to indicate  
15 that said record is a second version.

1 20. The method of claim 19, wherein said first data  
2 field is expanded by creating said second data field of said  
3 record, and including the step of copying data contained in  
4 said first data field to said second data field, and filling  
5 unused portions of said second data field.

1 21. The method of claim 19, wherein creating said  
2 second data field includes creating a data field which  
3 contains a change in attributes for data contained in an  
4 existing data field.

1 22. The method of claim 19, and including the steps of  
2 determining if said reserve area of said record is of  
3 insufficient size to accommodate a change in the record  
4 format for said record, and creating an additional record to  
5 accommodate a change in said record format if said reserve  
6 area is of insufficient size to accommodate the change.

1 23. A method for indicating a change in the record  
2 format of records of a data file that includes a plurality  
3 of records, said method comprising:

4 establishing a fixed length for said records of said  
5 data file, with each record including a data receiving

portion and a reserve area, said data receiving portion including at least one field containing data;

assigning a version number to at least one record of said data file for indicating that said one record is a first version of said record;

creating a second version of said one record to accommodate a change in the record format of said one record, wherein the second version of said one record includes a further field formed by increasing the data receiving portion of said one record while reducing said reserve area of said one record; and

assigning a different version number to the second version of said one record.

24. A method for formatting a data file that includes a plurality of records, said method comprising the steps of:

establishing a fixed length for said records of said data file;

defining for each record, a data receiving portion including at least one field containing data;

defining for each record a reserve area of a given length for accommodating a change in the record format of a first version of one of said records by creating a further field of a given length using at least a portion of said reserve area of said one record; and

assigning a version number to each record of said data file to indicate whether said record is an original version or a changed version.

25. The method of claim 24, including the step of expanding a data containing field of said one record by creating a further field using a portion of said reserve area of said one record.

26. The method of claim 24, including the step of increasing the number of data containing fields of said one

3 record by creating a further field using a portion of said  
4 reserve area of said one record.

1       27. The method of claim 24, and including the steps of  
2 changing an attribute of data contained in a data containing  
3 field of said one record by creating a further field using a  
4 portion of said reserve area of said one record, and  
5 transferring the data contained in said one data containing  
6 field of said one record to said further field of said one  
7 record.

1       28. The method of claim 24, and including the steps of  
2 determining if said reserve area of said one record is of  
3 insufficient size to accommodate a change in the record  
4 format for said one record, and creating an additional  
5 record to accommodate the change in the record format of  
6 said one record if said reserve area of said one record is  
7 of insufficient size to accommodate the change.

1       29. The method of claim 24, wherein said plurality of  
2 records of said data file include different types of records  
3 including a file header record, at least one detail record  
4 and a file trailer record, and including the step of  
5 assigning to each record a record identifier which indicates  
6 the type of record.

1       30. The method of claim 29, wherein said plurality of  
2 records of said data file further include at least one batch  
3 header record and at least one batch trailer record, and  
4 including the step of assigning to the batch header record  
5 and the batch trailer record a record identifier which  
6 indicates the type of record.

1       31. A method for making a change in the record format  
2 of records of a data file, each of said records including at  
3 least a first data field, said method comprising:

4 defining for each of said records a reserve area of a  
5 given length for accommodating a change in the record format  
6 of a first version of said records;  
7 assigning a version number to each of said records when  
8 said records are initially created;  
9 determining if said reserve area of at least one of  
10 said records of a record set is large enough to accommodate  
11 a change in the record format of said one record;  
12 creating an additional record for said record set to  
13 accommodate a change in the record format of said one record  
14 if said reserve area of said one record is of insufficient  
15 size to accommodate the change; and  
16 assigning a version number to said additional record.

1 32. The method of claim 31, including expanding a data  
2 field of any one of said records by creating a further  
3 record having a further data field, copying data contained  
4 in said one data field to said one data field, and filling  
5 unused portions in said further data field.

1 33. The method of claim 31, wherein creating said  
2 additional record includes creating a further data field  
3 which contains a change in attributes for data contained in  
4 an existing data field of one of said records.

1 34. A method for formatting a data file that includes  
2 a plurality of records, said method comprising the steps of:  
3 establishing a fixed length for said records of said  
4 data file;  
5 defining for each record, a data receiving portion  
6 including at least one field containing data;  
7 defining for each record, a reserve area of a given  
8 length for accommodating a change in the record format of a  
9 first version of one of said records by creating a further  
10 field of a given length using at least a portion of said  
11 reserve area of said one record;

12        determining if said reserve area of said one record is  
13 large enough to contain said further field;  
14        creating an additional record for the record set to  
15 accommodate changes in the content of said one record after  
16 said reserve area if said one record is insufficient size to  
17 contain said further field; and  
18        assigning a version number to each record of said data  
19 file.

1        35. The method of claim 34, including expanding a data  
2 field of any one of said records by creating a further  
3 record having a further data field, copying data contained  
4 in said one data field to said one data field, and filling  
5 unused portions in said further data field.

1        36. The method of claim 34, wherein creating said  
2 additional record includes creating a further data field  
3 which contains a change in attributes for data contained in  
4 an existing data field of said data file.

1        37. A data file comprising:  
2            a plurality of records, each record including a data  
3 receiving portion having at least one field containing data,  
4 and a reserve area for accommodating a change in the record  
5 format of one version of one of said records by creating a  
6 further field using at least a portion of said reserve area,  
7 each record of said data file having a version number, and  
8 wherein the length of each record of said data file is  
9 fixed.

1        38. The data file according to claim 37, wherein said  
2 plurality of records include different types of records  
3 including a file header record, at least one detail record,  
4 and a file trailer record, each record having a record  
5 identifier indicating the record type.

1       39. The method of claim 38, wherein said plurality of  
2 records of said data file further include at least one batch  
3 header record and at least one batch trailer record, the  
4 batch header record and the batch trailer record each having  
5 a record identifier indicating the record type.

1       40. The data file according to claim 37, wherein all  
2 of said records of said data file have the same length, said  
3 reserve area allowing the creation of further fields for  
4 said records of said data file without increasing the length  
5 of said records of said data file.